

Dated: December 8, 2008.

**Patrick Gallagher,**

*Deputy Director.*

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## DEPARTMENT OF COMMERCE

### National Institute of Standards and Technology

#### Technology Innovation Program (TIP) Seeks White Papers

**AGENCY:** National Institute of Standards and Technology (NIST), Department of Commerce.

**ACTION:** Notice.

**SUMMARY:** The National Institute of Standards and Technology's (NIST) Technology Innovation Program (TIP) announces that it is seeking white papers from any interested party, including academia; federal, state, and local governments; industry; national laboratories; and professional organizations/societies. White papers will be used to identify and select areas of critical national need to be addressed in future TIP competitions.

**DATES:** The due dates for submission of white papers are January 15, 2009, March 9, 2009, May 11, 2009, and July 13, 2009.

**ADDRESSES:** White papers must be submitted to TIP as follows:

*Paper submission:* Send to National Institute of Standards and Technology, Technology Innovation Program, 100 Bureau Drive, Stop 4750, Gaithersburg, MD 20899-4750. Attention: Critical National Needs Ideas.

*Electronic (e-mail) submission:* [tipwhitepaper@nist.gov](mailto:tipwhitepaper@nist.gov).

**FOR FURTHER INFORMATION CONTACT:**

Thomas Wiggins at 301-975-5416 or by e-mail at [thomas.wiggins@nist.gov](mailto:thomas.wiggins@nist.gov).

**SUPPLEMENTARY INFORMATION:**

*Background Information.* The Technology Innovation Program (TIP) at the National Institute of Standards and Technology (NIST) was established for the purpose of assisting U.S. businesses and institutions of higher education or other organizations, such as national laboratories and nonprofit research institutions, to support, promote, and accelerate innovation in the United States through high-risk, high-reward research in areas of Critical National Need. The TIP statutory authority is Section 3012 of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act, Pub. L. 110-69 (August 9, 2007), 15 U.S.C.A.

278n (2008). The TIP implementing regulations are published at 15 CFR Part 296 (73 FR 35913 (June 25, 2008)).

TIP holds competitions for funding based on areas of critical national need. TIP identifies and selects topics for areas of critical national need based on input from within NIST, the TIP Advisory Board, the science and technology communities, and from the public. TIP is interested in receiving input on the identification and definition of problems that are sufficiently large in magnitude that they have the potential to inhibit the growth and well-being of our nation today. This announcement explains the requirements and process for submitting white papers to TIP by interested parties. White papers from experts in our sister federal agencies are welcomed and also valuable, and will enable TIP to complement the efforts of other mission agencies and avoid duplication of their efforts, as well as leverage resources to benefit the nation.

The key concepts, enumerated below, are the foundation of TIP and should form the basis of an effective white paper:

a. An *area of critical national need* means an area that justifies government attention because the magnitude of the problem is large and the associated societal challenges that need to be overcome are not being addressed, but could be addressed through high-risk, high-reward research.

b. A *societal challenge* is a problem or issue confronted by society that when not addressed could negatively affect the overall function and quality of life of the Nation, and as such, justifies government action. A societal challenge is associated with barriers preventing the successful development of solutions to the area of critical national need. TIP's mission is to tackle the technical issues that can be addressed through high-risk, high-reward research. The results of the high-risk, high-reward research should have the potential for transformational results.

c. A *transformational result* is a potential project outcome that enables disruptive changes over and above current methods and strategies. Transformational results have the potential to radically improve our understanding of systems and technologies, challenging the status quo of research approaches and applications.

The white papers are expected to contain: A description of an area of critical national need and the associated societal challenge(s) (what is the problem, why is it a problem, and why is it challenging), why government

support is needed, and what could happen if that support is not provided in the proposed timeframe, and a high level discussion of potential technical solutions and an indication of the types of entities or groups who might be interested in developing proposal submissions to fund these solutions. Do not include ideas for specific proposals in the white paper.

White papers must not contain proprietary information.

Information contained in these white papers will be considered and combined with information from other resources—including the vision of the Administration, NIST, other government agencies, technical communities, the TIP Advisory Board, and other stakeholders—to select the scope of future competitions and to shape TIP's collaborative outreach. White papers are a valuable resource that adds to TIP's understanding of the significance and scope of critical national needs and associated societal challenges.

For detailed instructions on how to prepare and submit white papers, refer to "*A Guide for Preparing and Submitting White Papers on Areas of Critical National Need*." The Guide is available on the TIP Web site at [http://www.nist.gov/tip/guide\\_for\\_white\\_papers.pdf](http://www.nist.gov/tip/guide_for_white_papers.pdf).

In this call for white papers, TIP is seeking information in all areas of critical national need, but also seeks information to assist TIP in further defining several topic areas under development. White papers that address any of the following areas may further develop the definition and scope of the critical national need suggested by these topic areas, and should additionally identify and explain specific societal challenges within these critical national need areas that require a technical solution. White papers may discuss any critical national need area of interest to the submitter, or may address any of the following topic areas:

*Civil Infrastructure:* Civil infrastructure constitutes the basic fabric of the world in which we live and work. It is the combination of fundamental systems that support a community, region, or country. The civil infrastructure includes systems for transportation (airport facilities, roads, bridges, rail, waterway locks); and systems for water distribution and flood control (water distribution systems, storm and waste water collection, dams, and levees). New construction approaches and materials to improve the infrastructure and for mitigating the expense of repairing or replacing existing infrastructure appear to be areas with the potential for specific societal

challenges within this area of critical national need.

*Examples could include challenges such as:* advanced materials for repair and rehabilitation of existing infrastructure, advanced inspection and monitoring technologies that assist public safety officials in determining the condition of structures, or areas of sustainability of infrastructure construction.

*Complex networks and complex systems:* Society is increasingly dependent on complex networks like those used for energy delivery, telecommunication, transportation, and finance over which we have very imperfect control. No single organization and no collection of organizations have the ability to effectively control these multi-scale, distributed, highly interactive networks. Complex network theory will also be important in modeling neural systems, molecular physiological response to disease, and environmental systems. The current technical and mathematical methodologies that underpin our ability to simulate and model physical systems are unable to predict and control the behavior of complex systems. Stability and control of these networks can have far reaching consequences to our quality of life.

*Examples could include challenges such as:* theoretical advances and/or proof-of-concept applications; or capabilities that can potentially address and advance the use of complex network analyses in the following areas—sustainable manufacturing models, resource management and environmental impacts (energy, water, agriculture), intelligent transportation systems, biological systems, communications networks, security systems, personalized healthcare, and others.

*Energy:* From agriculture to manufacturing, all endeavors require energy as input. Escalating energy demands throughout the world can lead to national security challenges, financially challenge national economies, and contribute to environmental alterations. Although heavily supported projects exist in energy research, there remain technical roadblocks that affect full deployment of new and emerging energy technologies.

*Examples could include challenges such as:* technologies for improved manufacturing of critical components for alternative energy production; replacement of fossil-fuel derived fuels with non-food, renewably produced fuels; or improved technologies for stable connections of many power sources to the electrical grid.

*Ensuring Future Water Supply:* As the Nation's population and economy grow, greater demands are being placed on freshwater resources. At the same time, temporary or permanent drought conditions and water access rights affect regional freshwater availability. Water needs threaten to outstrip available freshwater, now and in the future. Water quality, both in terms of decontamination and disinfection of water supplies, is also being pressured by emerging contaminants that must either be removed from distributed water or converted to harmless forms of waste. Food contaminations are often traced back to water contaminations, either in the field or in processing. Municipal waste streams and irrigation runoff waste resources that are not recovered.

*Examples could include challenges such as:* means to provide future fresh water supplies without undue consumption of energy resources; means that determine and assure the safety of water and food from waterborne contamination; or means to economically recover resources from wastewater streams and lower the energy cost of producing freshwater and potable water from marginalized water resources.

*Manufacturing:* Manufacturing is a vital part of our nation's economy, which now is facing increasing global competitiveness challenges, regulations and controls over environmental and resource issues, and other economic pressures. Technical advances have at times been able to address productivity and other issues, but the recent pressures on the manufacturing community have hindered their ability to focus the necessary resources on longer term solutions that could lead to economic growth in this sector which the nation needs.

*Examples could include challenges such as:* manufacturing systems that have shorter innovation cycles, more flexibility, and are rapidly reconfigurable; accelerating commodization of next generation, high-performance materials, such as nanomaterials, composites, and alloys to specification, in a consistent, efficient and effective manner; or life cycle assessment tools, an aid toward sustainable manufacturing; and better robotics solutions.

*Nanomaterials/nanotechnology:* The unique properties of nanomaterials provide extraordinary promise. There is a need for greater understanding and solutions to overcome the barriers associated with manufacturing nanomaterials and their incorporation into products, while maintaining the

unique functionality of the nanomaterial. Although many processes are achievable in the laboratory, the scale-up to industrial production without compromising the quality of the produced material can be highly problematic.

*Examples could include challenges such as:* methods required for manufacturing nanomaterials with pre-specified functionality and morphology; methods for inspection and real-time monitoring the processing of nanomaterials; or methods for incorporation of nanomaterial into products without compromising the material's required properties.

*Personalized Medicine:* Healthcare spending per capita in the United States is high and rising and currently approved drugs work only in a fraction of the population. Doctors are unable to select optimal drug treatments and dosages based on the patient's unique genetics, physiology, and metabolic processes, resulting in a trial and error component in treatment. As a consequence, significant expenditures go for drugs that are ineffective on subsets of patients, and a clearer understanding of which patients may suffer side effects from prescribed medicine is lacking. The key to patient response lies in greater understanding of both genetic variability and environmental influences on disease mechanisms.

*Examples could include challenges such as:* cost effective advanced tools and techniques for genomics and proteomics research that provide greater understanding of complex biological systems, biomarker identification, and targeted drug and vaccine delivery systems; improved and low cost diagnostic and therapeutic systems; or better methods of integration and analysis of biological data, especially when combined with environmental and patient history data.

*Sustainable Chemistry:* The products and processes created through chemical transformations underpin virtually every facet of our economy today, from healthcare to materials to energy. Many industrial-scale chemical processes, however, can have significant negative impacts on the environment that require costly waste prevention controls. These chemical processes also can pose safety risks to human health that might be mitigated through new chemicals. In addition, many processes are highly energy intensive which contributes to increasing costs. Sustainable chemistry seeks to lessen such impacts by the use of safer materials in chemical processes, by substitution of new products with similar properties to existing products,

and by reducing the energy intensity of the unit operations within the chemical manufacturing industry.

*Examples could include challenges such as:* novel, advanced process chemistries and technologies that are inherently safer and cleaner, while creating products and processes with attributes superior to conventional methods; advanced chemical separations; and energy and material efficient technologies for chemical processing.

Dated: December 11, 2008.

**Patrick Gallagher,**

*Deputy Director.*

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## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

#### Availability of Seats for the Cordell Bank National Marine Sanctuary Advisory Council

**AGENCY:** Office of National Marine Sanctuaries (ONMS), National Ocean Service (NOS), National Oceanic and Atmospheric Administration, Department of Commerce (DOC).

**ACTION:** Notice and request for applications.

**SUMMARY:** The ONMS is seeking applicants for the following vacant seats on the Cordell Bank National Marine Sanctuary Advisory Council (Council): Conservation Alternate and Primary, Maritime Activities Alternate and Primary. Applicants are chosen based upon their particular expertise and experience in relation to the seat for which they are applying; community and professional affiliations; philosophy regarding the protection and management of marine resources; and possibly the length of residence in the area affected by the Sanctuary. Applicants who are chosen as members should expect to serve 2-3 year terms, pursuant to the Council's Charter.

**DATES:** Applications are due by January 30th, 2009.

**ADDRESSES:** Application kits may be obtained on the Cordell Bank Web site at: <http://cordellbank.noaa.gov>, and from Cordell Bank National Marine Sanctuary, Rowena Forest, P.O. Box 159, Olema, CA 94950. Completed applications should be sent to the above mailing address or faxed to (415) 663-0315.

**FOR FURTHER INFORMATION CONTACT:** Rowena Forest/CBNMS,

*Rowena.forest@noaa.gov*, P.O. Box 159 Olema, CA 94950, (415) 663-0314 x105.

**SUPPLEMENTARY INFORMATION:** NOAA established the Advisory Council for Cordell Bank in 2002. The Council has members representing education, research, conservation, maritime activity, and community-at-large. The government seats are held by representatives from the National Marine Fisheries Service, the United States Coast Guard, and the managers of the Gulf of the Farallones, Monterey Bay and Channel Islands National Marine Sanctuaries. The Council holds four regular meetings per year, and one annual retreat.

**Authority:** 16 U.S.C. Sections 1431, *et seq.* (Federal Domestic Assistance Catalog Number 11.429 Marine Sanctuary Program)

Dated: December 8, 2008.

**Daniel J. Basta,**

*Director, Office of National Marine Sanctuaries, National Ocean Services, National Oceanic and Atmospheric Administration.*

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## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration (NOAA)

**[Docket No. 0811251527-81528-01]**

**RIN 0648-ZC03**

#### NOAA Bay Watershed Education and Training (B-WET) Program

**AGENCY:** Office of Education (OED), Office of the Under Secretary (USEC), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice of funding availability.

**SUMMARY:** NOAA B-WET is an environmental education program that promotes locally relevant, experiential learning in the K-12 environment. Funded projects provide meaningful watershed educational experiences for students, related professional development for teachers, and helps to support regional education and environmental priorities in the Pacific Northwest, the northern Gulf of Mexico and New England.

**DATES:** Proposals must be submitted by 5 p.m. Eastern Time on January 26, 2009. See Sections IV C and F of this announcement for more information on submission requirements.

**ADDRESSES:** Electronic application packages are strongly encouraged and are available at: <http://www.grants.gov/>. Paper application packages are available

on the NOAA Grants Management Web site at: <http://www.ago.noaa.gov/ago/grants/forms.cfm>. If the applicant has difficulty accessing Grants.gov or downloading the required forms from the NOAA Web site, the applicant should contact: Bronwen Rice, B-WET National Coordinator, by phone at 202-482-6797 or e-mail at [bronwen.rice@noaa.gov](mailto:bronwen.rice@noaa.gov). Grants.gov requires applicants to register with the system prior to submitting an application. This registration process can take several weeks and involves multiple steps. In order to allow sufficient time for this process, you should register as soon as you decide to apply, even if you are not yet ready to submit your proposal. If an applicant has problems downloading the application forms from Grants.gov, contact Grants.gov Customer Support at 1-800-518-4726 or [support@grants.gov](mailto:support@grants.gov). For non-Windows computer systems, please see <http://www.grants.gov/MacSupport> for information on how to download and submit an application through Grants.gov.

**FOR FURTHER INFORMATION CONTACT:** For the Pacific Northwest, please contact Seaberry Nachbar at 831-647-4201, or via e-mail at [seaberry.nachbar@noaa.gov](mailto:seaberry.nachbar@noaa.gov). For the northern Gulf of Mexico, Stephanie Bennett at 808-522-7481, or via e-mail at [stephanie.bennett@noaa.gov](mailto:stephanie.bennett@noaa.gov). For New England, Shannon Sprague, at 410-267-5664, or via e-mail at [shannon.sprague@noaa.gov](mailto:shannon.sprague@noaa.gov). Questions about this opportunity may also be directed to Bronwen Rice, B-WET National Coordinator, by phone at 202-482-6797 or e-mail at [bronwen.rice@noaa.gov](mailto:bronwen.rice@noaa.gov).

**SUPPLEMENTARY INFORMATION:** The NOAA Bay Watershed Education and Training (B-WET) Program is an environmental education program that supports experiential learning through local competitive grant awards in specific geographic regions. Prior to 2008 NOAA B-WET Programs were established for the Chesapeake Bay, California, and the Hawaiian Islands. As of 2008, three new programs are in place in New England, the northern Gulf of Mexico, and the Pacific Northwest. In FY09, it is anticipated that funds will be available for each of these three regions. Proposals are currently being solicited from the Pacific Northwest region, the northern Gulf of Mexico region, and the New England region. For the purposes of this solicitation, these three regions are defined as follows:

a. Pacific Northwest—the states of Oregon and Washington;